

shown. For example, if example user Sara White **326** is selected, the dynamic control **322** is further expanded to shown example access permission list **328**. In example access permission list **328**, example access permission **330** (No Access) is shaded, indicating that Sara White currently has no access to this document section. For this example, if access permission **330** is clicked, the dynamic control **322** is further expanded to provide a means to dynamically change access permissions. A list of Until options **332** is displayed, providing the option of maintaining the current access permission until a specific action occurs. For example, the user may select the Section Shared option **334** to specify that the current No Access permission for Sara White is to be maintained until the document section is designated for sharing by the user. When the example Section Shared option **334** is clicked, the dynamic control **332** is further expanded to provide an example list of Then options **336**, indicating access permissions that can be set once the Section Shared action occurs. In the example, the Comment Only option **338** is selected, indicating that the access permission for user Sara White will dynamically change from No Access to Comment Only when the document section is designated for sharing.

[0045] Referring now to FIG. 4, in an example embodiment, changes may be displayed above the document section so the user may see them before making any additional edits, as shown in the example document **300**. In the example document **300**, the user, via action control **316**, makes a request to receive updates to document section **306** from Tom Anderson. The updates **406** are displayed above document section **306**. The user may observe that Tom Anderson changed the last sentence in document section **306** and may make additional changes to the document section as a result.

[0046] Other example embodiments for the selection and display of coauthoring changes are possible. For example, the coauthoring changes may be displayed adjacent to the current section, below the current section or simply incorporated into the current section. In example embodiments, deletions and additions may be shown by strikethroughs and underlining.

[0047] In example embodiments, the user can select the one or more other users for which changes are to be displayed. The user may also globally select changes from all other users. In example embodiments, the changes can be received on a per section basis or for the entire document.

[0048] FIG. 5 shows the example document server **104** in more detail. The example document server **104** includes one or more documents **502**, a document permissions module **504**, a document update processing module **506**, and a document rendering module **508**. An example document **502** is rendered to a user when a request is received from an application program on a client to open the document.

[0049] The example document permissions module **504** stores the access permissions for each section of each document for each user. In some embodiments, the access permissions are stored within each document. In other embodiments, the access permissions are stored separately from each document (for example on a server or in a database) and are linked to the document. As noted above, different user access permissions can include full control, read/write, review only, comment only, read only and no access. Other user access permissions are possible.

[0050] The example document permissions module **504** also enforces access permissions without network connectivity. The document permissions module **504** achieves this enforcement by caching the access permissions on the client.

The access permissions are cached for the user and for all other users who have accessed the document. The document permissions module **504** updates the client cache dynamically when the access permissions change. When the user goes offline, the client cache is checked to determine the extent to which the user can edit sections of the document.

[0051] The example document update processing module **506** keeps track of all changes saved to a document by users. The document update processing module **506** also keeps track of which of these changes are designated by a user to be shared with other users. Typically, a user saves changes made to a document by clicking a button on the user interface representing saving. However, these saved changes are not made available to other users until a user designates the changes to be shared. In example embodiments, a user can make such a designation by highlighting one or more sections of a document and clicking a button on the user interface representing sharing. In other example embodiments, the user may designate that a document section is to be shared via an action control button adjacent to the document section. The user may also designate that the entire document is to be shared. The use of buttons representing saving and sharing are examples only. Other implementations are possible.

[0052] The example document update processing module **506** also processes requests from a user to obtain changes made to the document from other users. The user requests may be made for each document section via an action control or they may be made for the entire document. The example document update processing module **506** determines which sections of the document can be updated and provides the updated changes to the example document rendering module **508**. The user requests are manually generated so that the user can be in control of when the document is updated. This prevents the situation where a document section is updated while a user is editing it, possibly overriding changes the user made.

[0053] The example document rendering module **508** renders the document for display to a user on a client. The document rendering module may use standard user interface controls such as text boxes, list boxes and pull-down list boxes to display user access permissions for each section of the document and to display the names of users accessing sections of the document. In alternate embodiments custom designed controls may be used. User interface controls may also be used to define rules for each section of the document that are used to dynamically change access permissions depending on the user operation being performed.

[0054] The example document rendering module **508** also incorporates any shared updates from users into the document. These are updates made by users that were saved at the document server **104** and designated to be shared with other users. The updates may include edited changes to sections of the document, tracked review changes or comments. The example document rendering module **508** typically renders text edits above the section of the document in which the edits were made so that the current user can easily see them. Comments are typically rendered adjacent to sections of the document. However, in example embodiments, the updates may be positioned differently.

[0055] FIG. 6 shows an example flowchart for a method **600** for coauthoring a document. At operation **602**, a user opens a document on a client. The document, obtained from a document server, is organized into sections. Access permissions for the user are displayed on one or more sections of the